

ing a NAN network. The advertising device **110** follows the steps of the flow diagram **400** of FIG. 7A, broadcasting a Bluetooth LE ADV_IND or ADV_SCAN_IND PDU advertising packet seeking to discover a NAN ID available from another device having a NAN ID specified in the AdvA field of the ADV_IND/ADV_SCAN_IND PDU. The Bluetooth LE wireless device **110**, functioning as an advertiser, receives a response to the advertising packet, by receiving a wireless, discovery request packet, such as a Bluetooth LE SCAN_REQ PDU, indicating an available NAN network identified by the NAN ID. The received wireless discovery request packet includes the NAN ID indication associated with the NAN ID available in the sender in the sender's address field, such as the ScanA field. In response to receiving the wireless discovery request packet, the Bluetooth LE wireless device **110** functioning as an advertiser, may filter the received NAN ID indication in the SCAN_REQ PDU to determine whether there is any match of the received NAN ID indication with one or more NAN network identities of required NAN IDs. The Bluetooth LE wireless device **110**, functioning as an advertiser, transmits a wireless discovery response packet, such as a Bluetooth LE SCAN_RSP PDU, in response to the received wireless discovery request packet, including the NAN ID indication on which the match occurred, if the filtering determines that there is a match.

[0341] The steps of the flow diagram represent computer code instructions stored in the RAM and/or ROM memory, which when executed by the central processing units (CPU) CPU1 and/or CPU2, carry out the functions of the example embodiments of the invention. The steps may be carried out in another order than shown and individual steps may be combined or separated into component steps. The flow diagram has the following steps:

[0342] Step **402** inserting, by an apparatus, an indication associated with a required neighbor awareness network to an apparatus address field of a wireless advertisement packet (for example an ADV_IND PDU advertisement packet);

[0343] Step **404**: transmitting, by the apparatus, the wireless advertisement packet including the inserted indication associated with the required neighbor awareness network;

[0344] Step **406**: receiving, by the apparatus, one or more wireless discovery request packets (for example, a SCAN_REQ PDU discovery request packet) in response to the transmitted wireless advertisement packet;

[0345] Step **408**: determining, by the apparatus, whether any of the received wireless discovery request packets matches with one or more required neighbor awareness networks by filtering sender address field indication of each of the received one or more wireless discovery request packets with neighbor awareness network identities corresponding with the one or more required neighbor awareness networks; and

[0346] Step **410**: transmitting, by the apparatus, a wireless discovery response packet (for example, a SCAN_RSP PDU discovery response packet) in response to the received wireless discovery request packet including an indication associated with the neighbor awareness network on which the determination resulted a match.

[0347] FIG. 7C is an example flow diagram **450** of operational steps of the Bluetooth LE scanning device **100** operating in a NAN network or intending to operate in a NAN network. The device has previously buffered the NAN IDs of the NAN networks it has available or in which it intends to operate. The Bluetooth LE wireless device **100** filters and

analyzes the AdvA field of the received ADV_IND or ADV_SCAN_IND PDU and determines whether there is any match with the buffered NAN IDs, for NAN discovery. If the filtering determines that there is a match, the Bluetooth LE wireless device **100** prepares a wireless discovery response packet, SCAN_REQ PDU, to be transmitted including the indication associated with the NAN ID on which the match occurred, in accordance with at least one embodiment of the present invention. The steps of the flow diagram represent computer code instructions stored in the RAM and/or ROM memory, which when executed by the central processing units (CPU) CPU1 and/or CPU2, carry out the functions of the example embodiments of the invention. The steps may be carried out in another order than shown and individual steps may be combined or separated into component steps. The flow diagram has the following steps:

[0348] Step **452**: maintaining, by an apparatus, one or more neighbor awareness network identities of the apparatus has available or in which the apparatus intends to operate;

[0349] Step **454**: receiving, by the apparatus, a wireless advertisement packet (for example, a ADV_IND PDU packet) including an indication in a sender address field of the wireless advertisement packet associated with a required neighbor awareness network by a source apparatus of the wireless advertisement packet;

[0350] Step **456**: determining, by the apparatus, whether the required neighbor awareness network advertised in the received wireless advertisement packet matches with any of the one or more available neighbor awareness network by filtering the sender address field indication of the received wireless advertisement packet with the maintained one or more neighbor awareness network identities;

[0351] Step **458**: transmitting, by the apparatus, a wireless discovery request packet (for example, a SCAN_REQ PDU packet), including an indication associated with the neighbor awareness network on which the determination resulted in a match; and

[0352] Step **460**: waiting, by the apparatus, for a wireless response packet (for example, a SCAN_RSP PDU packet) including the indication associated with the advertised neighbor awareness network on which the match occurred.

[0353] The wireless advertisement packet may comprise either a Bluetooth Low Energy ADV_IND PDU packet or a Bluetooth Low Energy ADV_SCAN_IND PDU packet.

[0354] The sender address field may be a non-resolvable private address format in an AdvA field of either the Bluetooth Low Energy ADV_IND PDU packet or the Bluetooth Low Energy ADV_SCAN_IND PDU packet.

[0355] After filtering the NAN ID in the address field with the stored NAN ID values, if there is a match either in the advertiser or in the scanner, the apparatus may consider the match as an indication of need for further action, for example, activation of Wi-Fi NAN for publishing or subscribing purposes.

[0356] Operational steps of the Bluetooth LE advertising device **110** seeking a NAN network, comprise:

[0357] inserting, by an apparatus, an indication associated with a required neighbor awareness network to an apparatus address field of a wireless advertisement packet; and

[0358] transmitting, by the apparatus, the wireless advertisement packet including the inserted indication associated with the required neighbor awareness network.